(frequently injudicious) of nurses or friends, and the conduct of which, in many cases, modifies either for good or evil, the progress of the case.

The most striking peculiarity of the second part, the Universal Formulary, is the total rejection in the prescriptions themselves of Latin forms, and the conventional signs and abbreviations for weights, measures, &c., a modification which in part will meet with very various degrees of favour. The adoption of the full expression for weight, instead of the signs in use, is to be approved of, from its avoiding a source of error, which may result from want of legibility in the writer, or care and attention in the reader of the prescription. This part, though a Universal Formulary, does not consist of prescriptions solely, but the arrangement being in the alphabetical order of the names (officinal as far as possible) of the remedies themselves, advantage is taken to introduce, under each head, a concise account of its source, nature, mode of preparation, effects, and doses, with some other incidental observations of practical application, with an enumeration of the diseases in which they have been recommended. The sources from which the formulæ have been derived are appended to each formula, and are very numerous, embracing names of high reputation in medical and pharmaceutical science, the former giving authority for the rational constitution of the formulæ and their applicability to particular states or stages of disease, and the latter the eligibility of the processes and pharmaceutical preparations which they have recommended. In the selection, considerable judgment has been exercised, and repetition of formulæ with but slight modifications only, has been avoided; and in those instances where this appears, there is much room for doubt which formula is on the whole best, and whether under certain circumstances either may not become preferable, as better adapted to the peculiarities of the case.

In addition to parts before noticed, we have directions for preparing such articles of diet suitable to the varying states of disease, and capricious or sated palate of the sick and convalescent, as have not been previously noticed in the preceding formulary; together with a list of incompatible substances, a posological table, a table of pharmaceutic names, embracing a comparison of the names adopted in all the British and the United States Pharmacopœias, officinal observations on the forms in which medicines are used, and their mode of preparation, the external application of remedial measures, an account of poisons, their tests and antidotes, and three copious tables of reference, viz., an index of diseases and their remedies, an index of botanical and pharmaceutical names, and a general index, adding considerably, in a general point of view, to the advantages of the work.

In respect to the typographical execution, we can see no reason to complain; the paper is good, and the type of such size as not to render the bulk of the volume too great, while at the same time it is sufficient for a work of reference, and of such distinctness as to cause no loss of time in the search for any particular subject. We would, in conclusion, hope that the publishers may meet with that success which their enterprise deserves, and which the well-earned reputation of the author would lead them to expect. R. B.

ART. XV.—*An Introductory Lecture to the Course of* 1849–50, *in the Medical Institution of Yale College.* By J. KNIGHT, M.D., Professor of Surgery. 8vo. pp. 20.

THE important etiological question, the propagation of communicable diseases, briefly discussed by Dr. Knight in this able and interesting lecture, is beginning to excite the attention of medical philosophers on both sides of the Atlantic. There is perhaps no subject of greater importance to the physician, and to the public in general, than the manner in which diseases are propagated. It is one, however, in regard to which it is extremely difficult to arrive at positive conclusions—to distinguish certainly between the dissemination of diseases by a morbid condition of the atmosphere generally or of a given locality, and by a specific poison emanating from the bodies of the sick. Rejecting the fallacious arguments upon which was based the doctrine of the absolute contagiousness of diseases evidently epidemic or endemic, many distinguished physicians have probably erred in denying the possibility, under any circumstances, of morbid affections, ordinarily non-communicable, being propagated from the sick to the well. That diseases may prevail epidemically, in consequence of some unknown morbid condition of the atmosphere, which are at the same time, as well as when they occur sporadically, communicable by a specific poison proceeding from the bodies of the sick, is unquestionable. Now the question arises, can those diseases be propagated in this latter manner, under particular circumstances, that ordinarily are non-communicable? Many facts have within a few years fallen under our notice, which incline us to the belief that this question is to be answered in the affirmative, and such is the general conclusion at which Dr. Knight arrives in the lecture before us.

The following propositions express the views entertained by him upon this subject. They are drawn from, and, as he believes, supported by the facts and reasonings he has presented:—

"1st. All febrile diseases, of a typhoid and malignant type, depend upon, as their predisposing cause, a certain endemic or epidemic constitution of the atmosphere. What this state is, is entirely unknown.

"2d. This epidemic constitution, aided by the common exciting causes of disease, is at times sufficient to produce them.

3d. Whenever this epidemic constitution is present, they will be communicated from the sick to the well, and this communicability is a common cause of their propagation."

Dr. Knight does not enter into a full examination of the questions embraced in these propositions. He has merely presented a general outline of some of the facts and arguments upon which they are based, leaving the filling up and completion of this outline to future observations; and to such as have the leisure, and may feel inclined, to assume the task.

In the lecture, we are presented with a few general inferences, the correctness of which can scarcely be doubted, and which, as the lecturer remarks, may serve as rules and guides, in judging of the mode of propagation of a class of diseases, concerning which much difference of opinion has always existed. These inferences we consider of so much importance in the settlement of the question sketched out by Dr. Knight, that we shall present them to our readers.

"1st. It is no proof, although it may afford a presumption, that a disease is communicable, because many in the same family, neighbourhood, or region of country are affected by it, simultaneously, or in rapid succession; or because it extends, either rapidly or slowly, from place to place. This is as true of influenza and intermittent fever as it is of small-pox or measles.

"2d. It is no proof that a disease is not communicable, that in its greater prevalence at one time than another—that in its rise, increase, and decline in a community—in its attacking a portion of the inhabitants, while others escape who have been equally exposed to it—that, in these and many other similar particulars, it obeys the laws of epidemic diseases. All these things are true of those which are so communicable as to deserve the name of contagious, such as small-pox and measles.

"3d. It is no proof that a disease when fully formed is not communicable, that in many, and perhaps in the great proportion of cases, it arises from some of the common external causes of disease. In proof of this, I mention, as a notable example, hospital gangrene: a febrile malignant disease, whose local affection is a rapidly sloughing ulcer, taking the place of some pre-existing wound or sore. This formidable disease is produced by the many deleterious agencies which exist in ill-ventilated, over-crowded hospitals for those suffering from wounds; and from its first appearance is communicated, perhaps through the atmosphere, and certainly by the application of the purulent secretion to any abraded surface.

"4th. It is no proof that a disease is not communicable, that it does not obey all the laws of some other communicable disease. More errors in reasoning upon this subject have arisen from a want of knowledge or recognition of this law, than from all other sources. The course so commonly pursued as to be almost universal, by those who are examining the mode of propagation of diseases, is to select for comparison with the one to be investigated, some one of those which, while its contagious character is undoubted, is also strongly marked by other characteristic features, and if they are found to be unlike in one or other of these strong points, to infer that they are also unlike in the mode of their propagation. Perhaps small-pox, or some other of the distinct exanthems, is more commonly selected for this purpose than any other. Now, let us look at this method of reasoning, for the purpose of determining its accuracy. Small-pox is a disease which comes on at a definite time after exposure, is attended with a distinct and peculiar affection of the skin; and those who have ever had it, are, for the most part, exempt from future attacks. The other exanthems are like it in these particulars. From this it is inferred that some other disease, dysentery, perhaps, being unlike these, in the regularity of the period of accession after exposure, or perhaps coming on without known exposure—in not being attended with any skin affection—in not being followed by exemption from future attacks, is also unlike in its mode of propagation. Let us look at this in the form of a syllogism, and see how it will stand.

"Small-pox, a contagious, febrile disease, is attended by an eruption on the skin, which is essential to it.

"Dysentery, a febrile disease, is unattended by an eruption on the skin.

"*Therefore,* dysentery is not a contagious disease.

"The want of connection between the minor proposition and the conclusion is too obvious to require a remark. Before an argument of this kind can be of any force, it must be shown that all known contagious diseases are, like small-pox, attended by an eruption. A single exception destroys it. Now it is well known that pertussis, a febrile communicable disease, has no attending eruption, nor has, usually, that form of typhus recently called ship fever. A similar course of reasoning will lead to the same result, in regard to exemption from future attacks, and many other circumstances which characterize some of the communicable diseases, and are absent in others. It should be borne in mind, that each one of these diseases, as well as all others, is governed by its own peculiar laws, and that each is different from all the others in many important particulars. It would be just as pertinent an argument to say that measles cannot be communicated, because it is not attended like small-pox by a pustular eruption, affording a fluid with which others can be successfully inoculated, as that some other disease cannot be communicated, because, unlike both of them, it is attended by no eruption.

"5th. It is no proof that a disease is not communicable, that all who are equally exposed to it, or that many who are exposed to it in every degree, do not receive it. This is measurably true of all communicable diseases. Of one hundred persons exposed in the same degree to small-pox even, some will receive it while others will escape. The difference will be more obvious in those diseases which are less distinctly contagious than this is. This difference in susceptibility appears to depend upon some unknown, individual peculiarity of constitution.

"6th. It is no proof that a disease is not communicable, that at certain times and places, none of those exposed to it will receive it. This is also true, to a certain extent, of the strongly contagious diseases. How common is it for measles, for example, to prevail in one village, and not in its immediate neighbourhood, although in free communication with it, or for a failure to communicate it out of the locality where it prevails. This can be attributed only to the presence or absence of that epidemic or endemic influence which is unknown except from its effects. If these remarks are true, the force of several objections to the communicability of certain diseases is very much impaired, or entirely done away with. How often is it asked, with an air of triumph, as if the question was unanswerable, why is it, if a disease, yellow fever, for instance, is communicable, that physicians, nurses, and others who are about the sick, escape? And why is it that, if a patient is removed from the locality where it prevails, none of those about him are affected by it. In regard to the immunity of physicians, &c., it is not true to such an extent as to afford a basis for a conclusive argument, and, if true, it would be just as valid an objection to any other imaginable cause of the disease; for the question may with as much force be asked, why they escape, when they are exposed to the same morbid influence, whether animalcular, atmospheric, malarious, electrical, or anything else? It seems also to be true, in regard to yellow fever more obviously than to any other of those diseases whose mode of propagation has been the subject of dispute, that, after it has prevailed for a time, it forms for itself what is appropriately enough called an infected district, within which its ravages for the most part are confined."

It is not pretended that patients affected with cholera, yellow fever, erysipelas, and other febrile endemic or epidemic diseases, can under all circumstances communicate the disease with which they are affected to well persons; but that when a number of such patients are crowded together in badly-ventilated apartments, and especially where due attention is not paid to cleanliness, they will produce a condition of the atmosphere capable of communication to those exposed to it, a disease similar to that under which the patients themselves labour. Even single cases of a very malignant epidemic affection may, however, be sufficient to communicate infection to those who are constantly about the sick, though insufficient to propagate disease to casual visitors. We cannot refrain from making another long extract from the lecture of Dr. Knight, as it explains the particular views entertained by him relative to the propagation of diseases, and his long experience and mature judgment give to his opinions great weight.

Taking cholera as an example of those affections which, though not invariably communicable, become so under particular circumstances, Dr. Knight remarks:—

"One great fact in regard to the propagation of cholera is, that it is a progressive disease, advancing gradually from place to place, with differing degrees of rapidity, usually, though by no means uniformly, from east to west, and following, almost absolutely, the great lines of intercommunication by which men hold intercourse with each other, whether these are by land or water. Another leading fact in regard to it is, that it usually begins in one or more isolated cases, and gradually extends until many are seized with it, the number of patients gradually increasing during a variable period of from four to eight weeks, when it gradually decreases, until it entirely disappears. Now, when the disease is very prevalent, there is no opportunity of determining whether it is, or is not, communicated from the sick to the well, for the cause of the disease, whatever that may be, is so generally diffused, that all are exposed to it, and of course all trace of its progress is lost. Hence, physicians and others who witness the disease where it prevails most generally, have usually decided that it is simply an epidemic, dependent for its propagation solely on that atmospheric constitution which predisposes to it. Another significant fact in regard to its progress is, that usually more than one, and often many in the same family and locality, are seized with it in rapid succession, and that, when it once enters among a body of persons shut up together, as in almshouses and prisons, a large proportion of the inmates are affected.

"From these facts in the progress of the disease, common persons always come to the opinion that it is communicated from the sick to the well, and it requires a long train of reasoning, showing that, if it be so, it ought to have proceeded differently, to have had a different train of symptoms, and been followed by different effects, in short, to have been more like small-pox, before this opinion is abandoned by them. In truth, all of these facts can be tolerably well explained upon either notion, and there are so many exceptions and irregularities about them, as to render doubtful any conclusion from them. There are others, however, of a more definite kind, which deserve consideration. Let us look at some of these. Dr. Sterling's account condensed:—

"On the 1st of December, 1848, the ship New York, from Havre, arrived at the quarantine in New York. For a week or two previous to her arrival, there had been several fatal cases of cholera among her emigrant passengers. Up to this time there had been no appearance of cholera, or any indication of it at that station. From this time to the 2d of January, 1849, cases continually occurred, not only among the passengers from the New York, but also among the other inmates at the hospitals. A summary of the cases is as follows:—

"Passengers from the New York, 58 cases, 29 deaths.

"Other inmates of the hospitals, 48 cases, 25 deaths.

"Again, Dr. Fenner's account in New Orleans:—

"The ship Swanton arrived in New Orleans, from Havre, on the 11th of December, 1848. Immediately before her arrival, cases of cholera appeared among her passengers. At this time, cholera had not been noticed in that city, so that the Board of Health gave official notice on the 14th that cholera was not in the city. Still, according to the testimony of several physicians, bowel-complaints of an unusual character had for a time been somewhat prevalent. On the 15th, several cases of cholera were reported, and from that time to the 28th, these rapidly increased. On that day, the number of deaths was ninety-six; after this it gradually decreased. The progress of the disease is strikingly alike in these two places; in the mode and period of its commencement, in its duration and decline. The only differing feature is that, in New York, there had been nothing resembling it before the arrival of the ship, while in New Orleans, bowel-complaints had existed for a time.

"The facts connected with the appearance of cholera in this place and vicinity (New Haven), in 1832 and 1849, deserve to be mentioned in this connection. They were furnished to me by C. Hooker, M.D., who observed and recorded them for the most part at the time of their occurrence, and their accuracy may be relied on.

"The first case of cholera in New Haven, in 1832, occurred on Tuesday, July 10th, in the person of Mrs. N. She arrived the day before, from New York, with her son, six years old, at the house of her father, Mr. J., in Grand Street. In the house which she left in New York, there had been several cases of cholera and two deaths. She was attacked the morning after her arrival, and her son on Thursday, two days afterwards. Both had the disease severely, but recovered. On Friday, July 13th, Mrs. J., the mother of Mrs. N., and on the night following, Mr. J., her father, were attacked, and both died; one in eleven and the other in thirteen hours from the attack. No other case of the disease was observed in the city for more than three weeks. The house of Mr. J. was almost solitary and in a perfectly healthy condition. On Saturday evening, August 25, 1832, a mulatto seaman arrived at the public house of Mr. J. E., in the eastern part of the town of Guilford. On Sunday evening, he sickened with cholera and died on Monday. Whether he had been exposed to the disease was uncertain. On Wednesday evening, August 28, Mrs. E., and in the course of the night, Mr. E. and two of his children, aged eight and sixteen years, were attacked with the cholera. Mr. E. died on Thursday; the others recovered. The disease had not then, and did not afterwards prevail in that neighbourhood.

"On Saturday evening, June 23, 1849, a coloured woman, with her daughter and a nursing child, came to New Haven from New York, in the steamboat. In the house in New York from which they came, there had been several fatal cases of cholera. The girl was seized with cholera on Sunday, the day after their arrival in New Haven, the woman on Monday and the infant on Tuesday. The house in Hudson Street, in New Haven, to which they came, has an airy, healthy location, and the inmates were of temperate and cleanly habits. On Wednesday afternoon, about three days after the attack of the girl from New York, a woman who resided in the house became sick, and died of cholera the next day. On Thursday afternoon, a man in the same house had an attack of the disease, from which he recovered. At this time, and for several weeks after, there were no other cases of cholera in New Haven. In these three instances, it is difficult to resist the conclusion that the disease was brought from abroad and communicated from the sick to the well; to those who, without such exposure, would have escaped it.

"Many similar cases have occurred in many parts of the country, all leading to the same conclusion, that the disease was carried there by those already affected by it. Now, suppose in the place of cholera, the small-pox had been brought into the quarantine station in New York, or into the other places named, that other cases in the same number as there were of cholera had followed, and that after a time it had ceased without any known cause, would any one have doubted that it was the origin of the disease? It is objected that a small number only of all who were exposed were attacked; or that at another time no cases follow the introduction of those sick of it. All this is true, and is to be explained, so far as it can be explained, by the influential presence, in one case, of the epidemic influence, which predisposes to the disease, and its absence in the other. The state of a community in relation to cholera, after the epidemic influence has prevailed for a time, is very similar to the same community in relation to small-pox when vaccination has been generally but not universally resorted to. If the small-pox is introduced into the latter, a portion of the inhabitants, who are entirely unprotected, will be attacked by the disease in its full force; another portion, partially protected by imperfect vaccination, will pass through it in a form variously modified, while a larger part, in whom the susceptibility has been entirely destroyed, will altogether escape. What is this but saying, in other words, that some persons are for a particular, and in this case a known reason, susceptible to the cause of the disease, while others are not. Now in the other case, after that epidemic influence which predisposes to cholera has been for a time present in a community, a portion of the inhabitants will become susceptible of the disease in its most appalling forms, others less affected will pass through it mildly, while a large part escape entirely. Now in this state, the disease will be propagated variously, according to a great variety of modifying influences. Sometimes, especially when, along with this epidemic influence, there are the concurrent circumstances of a crowded and diseased population, impure air, great fatigue, unwholesome food, &c., the disease appears suddenly, and spreads with a rapidity which forbids the idea that its propagation depends solely or principally upon personal communication; as in the British army in India, under the Marquis of Hastings, in November, 1817, which, consisting of 10,000 English troops, 6,000 Sepoys, 50,000 or 60,000 camp followers, lost 9,000 men in eight days; when the army, continuing its march and reaching a different location, the disease suddenly ceased. In other cases, the disease begins and advances more gradually, commencing with those whose constitution has been impaired by previous excesses, and after a time seizes upon many of previously sound constitution and correct habits. In this case, the immediate exciting cause is often some temporary imprudence in regimen or diet, or the influence of the depressing passions. In other cases still, the outbreak and progress of the cases are so directly connected with the presence of those sick with it, as to leave no doubt that this fact was essential in the case to the production and extension of the disease.

"Now the same circumstances and the same train of thought might be stated as belonging to the other diseases named—dysentery, erysipelas, and yellow fever. Not that these are precisely alike in all the features which have been described, for each has its own peculiarities. Yet, they resemble each other strongly in all those great and leading facts which prove the combined influence of the epidemic constitution of the air, and of personal intercommunication in their propagation." D. F. C.

ART. XVI.—*Lectures on Electricity and Galvanism, in their Physiological and Therapeutical Relations, delivered at the Royal College of Physicians.* Revised and extended, by GOLDING BIRD, A.M., M.D., &c. London, 1849: 12mo. pp. 212.

Notes on the Medical Application of Electricity. By WILLIAM F. CHANNING, M.D. Boston, 1849: 12mo. pp. 200.

ON concluding the perusal of the first of the works the title of which is given above, the question occurs with considerable force, why have electricity and galvanism met with so little favour at the hand of the physician as a remedial means? Is it that the statements here made are destitute of the full confidence which they demand from the clearness of narration, the *vraisemblance* of details, and the high character of the author? or does it arise from want of familiarity with the subject, and unwillingness to undertake the use of remedies which might involve either the necessity of personal attention of the physician, or the risk